

RenewableUK Cymru response to the National Development Framework (NDF) 2020-2040 consultation

Introduction

Renewable UK Cymru (RUKC) is part of Renewable UK and is responsible for facilitating a renewable energy policy environment in which our members can operate, helping them grow their businesses and providing influencing and networking opportunities.

RUKC's members are building our future energy system, powered by clean electricity. We bring them together to deliver that future faster, a future which is better for industry, billpayers, and the environment. Our members are business leaders, technology innovators, and expert thinkers from across Wales.

RUKC welcomes the opportunity to comment on the National Development Framework (NDF) and is grateful for the detailed work which has been undertaken to inform its content.

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¹ Mapping exercise undertaken for RUKC by Dulas Ltd.

² Mapping exercise undertaken for RUKC by Dulas Ltd.

1. RUKC comments on the NDF's scope and ambition

1.1 Wales finds itself in a different political, environmental and societal situation to that which provided the context to the targets it set for the delivery and ownership of renewable energy in 2017³.

1.2 The NDF is a generation defining opportunity to put in place a new planning framework that can unlock Wales' potential to meet the challenges of the declared climate emergency.

1.3 RUKC broadly welcomes the Welsh Government's positive approach to renewables and the efforts made to reflect this in the narrative and policies of the NDF, summarised as follows⁴:

"The challenges of climate change demand urgent action on carbon emissions and the planning system must help Wales lead the way in promoting and delivering a competitive, sustainable decarbonised society. Decarbonisation and renewable energy commitments and targets will be treated as opportunities to build a more resilient and equitable low-carbon economy, develop clean and efficient transport infrastructure, improve public health and generate skilled jobs in new sectors."

1.4 RUKC appreciates there are continuing limitations on Welsh Government's ability to develop and manage a holistic approach to the decarbonising agenda while it still does not have full control over matters such as electricity transmission and The Crown Estate's leasing regime for the development of offshore and marine energy. However, the inter-relatedness of the UK energy system was evident during the recent Low Frequency Demand Disconnection event on August 9th 2019 where many thousands of Welsh customers were temporarily impacted.

1.5 This situation supports RUKC's position that the NDF must not be 'silent' on the support required for other renewable energy development (apart from onshore wind and solar) and how these technologies potentially contribute to a resilient and secure energy system. This includes reference to tidal projects, offshore wind (and onshore infrastructure associated with offshore wind development) and energy development that will facilitate renewable energy, e.g. pumped hydro and storage.

1.6 RUKC is also cognisant of the challenge of designing policy which accommodates a significant degree of economic and political unpredictability both in the immediate future and over the longer term. As noted in the First Minister's Foreword, *"It is difficult to imagine how the world might look in 2040"*⁵

³ P.3 Electricity generation in Wales 2017, Welsh Government

⁴ P.21, National Development Framework 2020-2040

⁵ P.4 National Development Framework 2020-2040

1.7 RUKC believes Welsh Government should articulate a clear direction of travel as regards Wales' future position as a net power exporter within the context of the NDF. This should include its analysis of how decarbonising heat and transport are likely to impact demand for renewable electricity. With an increased policy emphasis on local benefit, Wales stands to benefit from an increase in locally generated renewable electricity, however the policy position on the potential for the export of electricity from renewables remains unclear.

1.8 RUKC contends that in light of the existing levels of electricity consumption from renewable sources (50% in 2018⁶) already operational and in light of the furthering of Welsh Government's stated ambition, that the 70% / 2030 figure appears conservative. Welsh Government should therefore consider moving more quickly and setting a target for the percentage of power consumption in Wales that will be met by Welsh renewables in 2040 i.e. over the timeframe captured by the NDF.

1.9 RUKC believes the consultation document would also have benefitted from providing some insight into Welsh Government's view of the future interaction between expected increased demand arising from the decarbonisation of heating and transport, the need for complementary renewable energy technologies and the need to upgrade the electricity transmission and distribution networks in and between Wales' regions. RUKC suggests that the NDF should acknowledge the likely need for improved grid infrastructure *as an end in itself* to deliver future decarbonisation.

1.10 Furthermore, the NDF takes little account of the huge challenge to decarbonise heat beyond the establishment of District Heat Networks and to offer support "wherever they are viable"⁷. More consideration could have been given to a decarbonisation roadmap where the electrification of heating and transport and re-purposing of the gas distribution network may both need to play strategic roles in delivering a 'street by street' solution to decarbonisation.

2. RUKC comments on the NDF's policy proposals for Renewable Energy

2.1 RUKC recognises that the ambition and scope of the NDF represents a step change from the outgoing Technical Advice Note 8 'Planning for Renewables Energy' (July 2005) (TAN8). TAN8 restricted opportunities for developing projects >25MW largely to the Strategic Search Areas (SSAs) and provided limited opportunities for 5-25MW projects, whereas the NDF envisages consideration of large scale renewable energy projects (>10MW) in all areas outside those which have special designations. RUKC welcomes this and believes it is the only basis on which the Welsh Government's 2030 targets will be met.

2.2 RUKC believes that the policy wording outlined in policy 10 should be applicable to all areas outside NPs and AONBs (i.e. those currently defined as the 'red' areas within Welsh Government's proposed 'traffic light' approach)⁸, with the application of an appropriate criteria based approach. RUKC analysis indicates that a significant proportion, if not the majority, of development will have to come from areas outside the currently defined Priority Areas.

⁶ Electricity generation in Wales 2018, Welsh Government, p.3

⁷ NDF, P.43

⁸ NDF. P.37

2.3 RUKC does not advocate development anywhere. It is recognised that there are areas protected for their landscape or ecological value that are not suitable for renewables developments, and the appropriate designations are in place to protect these areas. Rather, RUKC favours a sensible criteria-based policy whose *ethos* carries a presumption in favour of energy generation development and landscape change in areas outside those with statutory designations. This would seem more aligned with the step change required to meet the challenge of the declared climate emergency and net zero ambition. It is also the approach inferred by Planning Policy Wales⁹:

“Planning authorities should give significant weight to the Welsh Government’s targets to increase renewable and low carbon energy generation, as part of our overall approach to tackling climate change and increasing energy security. In circumstances where protected landscape, biodiversity and historical designations and buildings are considered in the decision making process, only the direct irreversible impacts on statutorily protected sites and buildings and their settings (where appropriate) should be considered. In all cases, considerable weight should be attached to the need to produce more energy from renewable and low carbon sources, in order for Wales to meet its carbon and renewable targets.”

2.4 RUKC has consistently advocated that ‘lines on maps’ should not form the basis of subsequent iterations of planning policy following TAN8. The SSA model in TAN8 engendered considerable ill-will within local communities and host authorities for whom landscape change, both in terms of renewable energy projects and their associated grid connections, were viewed as a *fait accompli*, creating entrenched opposition to renewable energy (onshore wind) development. It is regrettable therefore that industry concerns relating to the proposed ‘priority areas’ model do not appear to have been taken into account.

⁹ Planning Policy Wales(v.10) Section 5.9.17

3. RUKC ANALYSIS OF TAN8 SSAs AND THE 11 SOLAR AND WIND ENERGY PRIORITY AREAS IN THE NDF

INTRODUCTION

3.1 As the NDF will supersede TAN8 and the SSAs, RUKC has carried out a comparative assessment of the proposed Priority Areas against the TAN8 SSAs. This has identified a number of inconsistencies between the prescription of the TAN8 SSAs and the draft NDF Priority Areas. This is a significant issue as it raises question marks over the validity of the exercise undertaken by Arup (to identify the Priority Areas) and the subsequent confusion this will bring to the policy framework if it is adopted. This is especially the case for current developments that are within TAN8 SSAs but not in a Priority Area under the NDF, despite the significant investments towards developing these sites and the huge opportunities they offer to the short term deployment of wind power.

ANALYSIS OF THE TAN8 SSAs

3.1 Technical Advice Note 8 (TAN8) identified seven Strategic Search Areas (SSAs) to guide the development of wind farms of 25MW and above. The document states: *It is a matter for local planning authorities to undertake local refinement within each of the SSAs in order to guide and optimise development within each of the areas.*

3.2 Annex D of TAN8 provides a Potential Methodology for LPAs to refine the SSAs, and between 2005 and 2008 Arup were commissioned by a number of involved LPAs to undertake TAN 8 Annex D Studies of each SSA.

3.3 Whilst industry recognises that the identification of SSAs and their refinement were based on typical market-available turbine tip heights at the time, it nevertheless highlights a number of serious flaws and inconsistencies in the methodology which led to the identification of the Priority Areas for the draft NDF, as follows:

3.4 TAN 8 Annex D Study of SSA A

In 2005, Arup undertook a refinement assessment of SSA A on behalf of Denbighshire County Council and Conwy County Borough Council. Priority Area 15 excludes large areas around Llyn Brenig which are within the SSA and refined boundaries, including Pant y Maen (consented), Brenig (operational) and the majority of Alwen Forest (option recently signed with NRW/DCWW). Existing, operational or consented wind farms were not included as an Overlay layer in the Stage 1 and 2 reports for the NDF so were therefore not a factor in the identification of the Priority Areas. This is clearly a shortcoming with regard to identification of the priority areas.

3.5 TAN 8 Annex D Study of SSAs B & C

In 2008 Arup undertook a refinement assessment of SSAs B and C on behalf of Powys County Council. Whilst the refined boundaries were not formally adopted through the LDP it clearly demonstrates inconsistencies between the TAN8 approach and the reports informing the draft NDF, including:

- **SSA B** - the TAN8 and Refined SSA boundaries include Carnedd Wen (recommended for approval by an Inspector), Dyfnant Forest and Cemmaes 3 but these sites are not within Priority Area 5
- **SSA C** - the Refined SSA boundary includes the consented Llandinam repowering project but is not within Priority Area 6

3.6 TAN 8 Annex D Study of SSA D

In 2007 Arup undertook a refinement assessment of SSA D on behalf of Ceredigion and Powys County Councils. The refined boundary is almost entirely within the SSA yet both boundaries do not feature within a Priority Area, primarily due to Landmap valuations of sensitivity.

3.7 TAN 8 Annex D Study of SSAs E & F

In 2006 Arup undertook a refinement assessment of SSA E and F on behalf of a consortium of five South Wales local authorities. The refined boundaries were formally adopted through the LDP process for Neath Port Talbot and Bridgend. Inconsistencies between the TAN8 process and the reports informing the draft NDF include:

- Refined SSA E consists of the western and eastern parts of SSA, whilst the Priority Area 14 shows the eastern refined SSA boundary to be solar only
- Refined SSA F covers Y Bryn (recently awarded NRW tender for a wind energy scheme) yet the Southern block is excluded from Priority Area 14 due to historic landscape (**see comments in Appendix 1**).
- There are areas within Priority Area 14 defined as solar only which are in areas of commercial plantation and which would not be suitable for such development; developers would not clear-fell commercial plantation for solar farms because of the significant landscape changes, the loss of extensive valued commercial forestry, difficulty of the resulting land cover, and excessive costs.
- Pen y Cymoedd wind farm (228MW), one of the largest operational schemes in the UK, is located largely within a Solar Only area in Priority Area 14. This evidences the often erroneous and contradictory mapping exercise conducted in delineating the priority areas.

3.8 TAN 8 Annex D Study of SSA G

In 2006 Arup undertook a refinement assessment of SSA G on behalf of Carmarthenshire County Council. The refined boundary is entirely within the SSA. Priority Area 11 is a significant area and does include all of the SSA, however the application of a 750m housing buffer highlights very limited potential outside of the already developed areas of the SSA.

ANALYSIS OF THE 11 SOLAR AND WIND ENERGY PROPOSED PRIORITY AREAS

3.9 RUKC conducted a mapping exercise to establish the likely developable opportunity (% of unconstrained area) of the 11 priority areas identified as ‘wind only’ priority areas. (i.e. it excluded priority areas 2, 4, 12 and 13 which are designated as ‘solar only’ priority areas). The constraints / criteria it applied for this exercise are detailed in **Appendix 2**¹⁰. The spatial outputs of this constraints mapping exercise are presented in Appendix 3.

3.10 In conducting the constraints mapping exercise of the priority areas, we have attempted to be as unrestrictive as possible – as evidenced by the criteria included in Appendix 2 which are ‘light touch’. However, it is apparent that the exercise (undertaken by Arup) to identify the priority areas has overlooked several critical factors in delineating the priority areas:

- a) no separation distances from properties have been applied, which is a central design criterion on all wind farms;
- b) other spatial limitations, such as MoD training areas and main river corridors; and
- c) approved or existing operational wind farm assets that automatically sterilise areas from potential new wind energy development.

3.11 RUKC has engaged with colleagues in the solar renewable energy sector and the Solar Trade Association (STA). Our understanding is that the STA will engage with the NDF and provide its view independently of this response.

3.12 According to RUKC’s analysis, following the constraints mapping exercise the total area of theoretically developable (unconstrained) opportunity for the 11 priority areas which relate to onshore wind equates to approximately 5%. In reality, it would be sensible to reduce the theoretical maximum capacity (MWs) figure by a further two-thirds, which accounts for the further site specific limitations of available areas (landowner permissions, hydrology, archaeology, set back from telecoms or roads etc) (N.B. This is a conservative figure to apply, as in reality many developers would agree that the development, landholding and site specific environmental aspects would likely reduce turbine numbers by as much as 80% by the time of an application for planning consent is submitted, and furthermore not all applications will be granted planning consent.) Accordingly, the right hand column in the table below reflects the more realistic potential of the priority areas following the initial constraints mapping exercise.

3.13 In addition to the above and following constraints mapping, there are a number of developable opportunities would relate to sites of less than 10MW capacity, and therefore not within the NDF’s remit. As such we have removed these parcels of land, which are typified by their isolation from other pockets and unlikely to developed in combination with other pockets. N.B. The mapping presented in Appendix 3 excludes the isolated parcels of land that are highly unlikely to yield schemes >10MW.

¹⁰ Dulas Ltd.

The approximate developable opportunity for onshore wind in the priority areas for wind is outlined in the table below:

Area ID	Hectares	Unconstrained area (ha)	Maximum % unconstrained area*	Turbines per area (4.2MW per 265,000m ²)	Theoretical MW Capacity	Realistic Development Potential (i.e. one third of previous column) MW Capacity
1	18369	105.78	1%	4	17	6
2	0	0	0%	0	0	0
3	13109	53.4	0%	2	8	3
4	0	0	0%	0	0	0
5	29189	4898.84	17%	185	776	256
6	42830	2034.87	5%	77	322	106
7	3826	63.56	2%	2	10	3
8	18942	715.89	4%	27	113	37
9	33172	161.22	0%	6	26	8
10	17136	140.23	1%	5	22	7
11	72129	1379.18	2%	52	219	72
12	0	0	0%	0	0	0
13	0	0	0%	0	0	0
14	20851	3604.29	17%	136	571	188
15	15124	787.63	5%	30	125	41
TOTALS				526	2210	729

* these figures detail the potential unconstrained area remaining after applying the table of development criteria and constraints set out in Appendix 2

**assuming 2 x 175m tip height turbines qualifies as a DNS application, developable areas less than 530,000m² have been excluded where they are isolated and could not practicably be developed alongside other clustered unconstrained pockets

3.14 RUKC then conducted further analysis of the potential uplift in developable opportunity from the adoption of a criteria led policy for renewable energy development, using the same criteria, for the whole of Wales out with the national protected designations. This further analysis resulted in the following outcomes, the main feature of which is a potential fourfold increase in the realistic development potential:

Area ID	Hectares	Unconstrained area (ha)	Maximum % unconstrained area*	Turbines per area (4.2MW per 265,000m²)	Theoretical MW Capacity	Realistic Development Potential (i.e. one third of previous column) MW Capacity
All Wales	2093897	64770.47	3%	2444	10263	3387

* these figures detail the potential unconstrained area remaining after applying the table of development criteria and constraints set out in Appendix 2

4. RUKC Analysis & Comments on draft NDF Policy

4.1 This section sets out the areas which RUKC consider require refinement and clarification in order to ensure that the NDF will maximise its potential to deliver energy generating development in line with the Welsh Government’s targets and the outcomes of the NDF. As a starting point, it is considered that the climate emergency is not given sufficient weight within the document. Tackling the climate change emergency should run through all the outcomes in the NDF rather than just the last one, Outcome 11.

4.2 The proposed amendments below are based on the experience of our members and seek to address potential consenting difficulties in terms of policy interpretation and application and, in doing so, increase developer certainty.

4.3 As a general comment, it is considered that the NDF should have numbered paragraphs to make reference to the document easier and clearer in practical terms, particularly in the decision-making process. Page 6 of the NDF document notes that the NDF is the “*highest tier of development plan*” and that it comprises the framework which will provide the basis for Strategic Development Plans (SDPs) and Local Development Plans (LDPs) at local planning authority (LPA) level. Within the current draft, the NDF makes it clear that SDPs and LDPs must be in accordance with it, however, its status in decision-making on developments of national significance (DNS) is not explicitly set out.

4.4 It is RUKC’s view that the NDF’s status in the development plan hierarchy and the decision-making process (and the weight that should therefore be attached to it) must be clearly set out in the document in the interests of clarity and certainty for all stakeholders, including decision-makers, statutory consultees, members of the public and applicants (and their investment partners).

4.5 The proposals for a new infrastructure planning regime in Wales¹¹ state that decisions on nationally significant scale development, i.e. DNS, will be taken in accordance with the NDF. There should be an explicit and unequivocal statement in the NDF that for any applications falling within the DNS regime, the NDF constitutes the development plan in line with Section 38(4) of the Planning & Compulsory Purchase Act 2004¹² (PCPA 2004), and that DNS decisions made by the Welsh Ministers must be in accordance with the NDF unless material considerations indicate otherwise (s38(6) PCPA 2004). It is imperative that this is stated explicitly within the NDF.

¹¹ <https://beta.gov.wales/sites/default/files/consultations/2018-04/180430-changes-to-the-approval-of-infrastructure-development.pdf>

¹² <https://www.legislation.gov.uk/ukpga/2004/5/section/38#commentary-key-f1f801ef2bf2cf4dff9896b62a5503a7>

Extracts from the NDF

“The NDF is a spatial plan, which means it sets a direction for where we should be investing in infrastructure and development for the greater good of Wales and its people.” NDF Introduction

“The spatial strategy is the overarching framework for deciding where to locate nationally significant developments, in order to maximise their contribution to the well-being goals.” NDF Introduction

4.6 RUKC is wholly supportive of the need for national policy to set the direction for future infrastructure investment. However, although it is referred to as a “spatial plan”, the NDF is only spatial in respect of policies relating to the development of wind and solar energy (Policies 10, 11 and 12).

4.7 Beyond the ‘traffic-light’ approach to onshore wind and solar in Policies 10, 11 and 12, the NDF makes provision for other types of renewable generating stations over 10MW (Policy 13). It is RUKC’s view that the NDF should also include policies relating to all types of DNS not just renewable energy generation projects (e.g. *overhead grid connections up to 132kV*, conventional generating stations >10MW, pumped hydroelectric storage schemes, underground gas storage facilities, facilities for liquid natural gas (LNG), gas reception facilities, airports, railways, rail freight interchanges, dams and reservoirs, transfer of water resources, waste water treatment plants and hazardous waste facilities¹³). As the development plan for DNS applications (which is intended to set a framework through to 2040), the NDF should proactively set policy for all types of infrastructure, not simply react to ones that are currently on the DNS register.

4.8 The lack of a solid decision-making framework for all types of DNS is a major short-coming, particularly when LDPs will typically not include policy provisions against which these types of development can be determined. It is acknowledged that it may not be possible to include policies relating to these types of projects in the first iteration of the NDF, but they should, at the very least, be included at the first NDF review

Extract from NDF

“The NDF should be read alongside Planning Policy Wales (PPW) which provides planning policy on an all-Wales basis. The NDF complements PPW, with a shared commitment to placemaking and by setting out the spatial priorities for planning and development where national-level consideration is required.” NDF Introduction

4.9 The relationship between the NDF and PPW also needs to be clarified. In decision-making terms, and in line with s38(6) of the PCPA 2004, the NDF constitutes the development plan and PPW constitutes a material consideration. It cannot be said therefore that the NDF “*complements*” PPW. RUKC

¹³ The Developments of National Significance (Specified Criteria and Prescribed Secondary Consents) (Wales) Regulations 2016 (as amended)

recommends that the relationship between the policy documents is made clear and reference is made to s38 of the PCPA 2004 to remove any ambiguity. The NDF should make a clear statement that DNS applications will be determined in accordance with the NDF unless material considerations, including PPW, indicate otherwise.

4.10 With respect to the types of large scale energy developments that will fall to be determined within the Developments of National Significance (DNS) regime, the NDF defines these as:

- *All onshore wind generation over 10 megawatts (MW); and*
- *Other renewable energy generation sites with generating power between 10MW and 350MW”.*

4.11 This statement is inaccurate as the DNS regime includes any energy generation between 10MW and 350MW, not just renewables. Therefore, RUKC requests that the word ‘**renewable**’ in the second bullet point is deleted. RUKC also considers that reference should include overhead grid connections of up to 132kv.

4.12 It is critical that Wales continues to have secure and reliable supplies of electricity throughout the transition to a low carbon economy, whilst also replacing existing power plants due for closure. To manage the risks to achieving security of supply, sufficient electricity capacity (including a greater proportion of low carbon generation) is required to meet demand, and this requires a diverse mix of technologies and fuels.

4.13 The National Infrastructure Commission (NIC) published its National Infrastructure Assessment (NIA) in July 2018, which presents recommendations for a programme of upgrades to the nation’s infrastructure. The NIC believes there is significant scope to build resilience through intelligent deployment of a mix of renewables working alongside sources of flexibility such as storage, interconnectors with other countries, and demand side response. It is acknowledged that the NIA predominantly applies to England, but there are clear parallels to be drawn with Wales in the absence of any similar assessment by the National Infrastructure Commission for Wales (NICW).

4.14 As currently drafted, the NDF does not include any reference to the range of technologies required to deliver a resilient and flexible energy system. Given the Welsh Government’s target to generate 70% of electricity consumption from renewable energy by 2030, the absence of policies or narrative relating to conventional generation (i.e. the remaining 30%), storage and grid balancing is a significant omission. It also fails to recognise the potential for hybrid projects to come forward which incorporate wind, solar and energy storage.

4.15 A consistent approach to the Welsh Government’s position on non-devolved projects¹⁴ would also be welcomed – in this context, the NDF only mentions nuclear projects. Although the Welsh National Marine Plan (WNMP) is the primary development plan for devolved offshore projects (<350MW), the NDF should include support of non-devolved projects (>350MW), subject to acceptable environmental impacts, including offshore wind (as is currently the case

¹⁴ Nationally Significant Infrastructure Projects (NSIPs) determined under the Planning Act 2008

at paragraph 3.1 of TAN8) and tidal lagoons. Local planning authorities and the Welsh Ministers are statutory consultees for non-devolved projects determined under the Planning Act 2008. Additionally, planning permission is likely to be required for onshore installations associated with offshore projects and the NDF should also include narrative in support of such installations subject to acceptable environmental impacts. In these cases, the synchronisation of onshore and offshore consenting (including marine licences) would be welcomed.

4.16 The lack of policy for non-devolved projects creates a practical consenting difficulty. The decision making process for non-devolved energy generating projects is reliant on s104 and s105 of the Planning Act 2008. These sections state that application for development consent for nationally significant infrastructure projects (NSIPs) should be determined in accordance with the relevant National Policy Statement (NPS) where one is designated (s104), or important and relevant matters where there is no designated NPS for the technology proposed (s105). If determined under s105, the important and relevant matters would include the NDF, SDPs and LDPs and if these are silent on the type of technology proposed (for example, this is the case for hydroelectric pumped storage) then the policy case which supports schemes that could be critical to an energy system with a high proportion of renewables is extremely unclear. It is essential that the NDF provides policy support for all technologies required as part of a renewables-based energy system whether they are DNSs or NSIPs.

4.17 The NDF adopts a *'clear traffic light-based approach to its policy on large scale and wind and solar renewable energy projects'*. According to the NDF, a strategic review of landscape impact identified the Energy Priority Areas as the most appropriate locations to accommodate landscape change. However, from RUKC's review of all of the consultation documents, it is clear that landscape and visual were not the only constraints applied. This is confirmed by Paragraph 3.1 of ARUP's Stage 1 Report (Development of Priority areas for wind and solar energy) which sets out that *"The development of the methodology has been an iterative process, with input from stakeholder workshops, Arup experts, stakeholder engagement, and meetings with the Welsh Government core team"*.

4.18 RUKC contends that the traffic light approach is misleading, fails to provide a clear position on where development will come forward and should be removed from the NDF in favour of criteria based policies.

4.19 The draft NDF sets out that the spatial strategy is for large scale and solar development to be directed towards the defined Energy Priority Areas for Wind and Solar. These areas provide a presumption in favour of large scale on shore wind and solar energy development, and an acceptance of landscape change and a focus on maximising benefits and minimising impacts.

4.20 RUKC recognises the Welsh Government's desire to identify suitable areas to assist in determining where grid upgrade and reinforcement may be required to enable the deployment of renewables, but is concerned that the current policy drafting may suggest that the identified areas are developable in their entirety. This is not the case - see Section 3 mapping analysis of the priority areas and Appendix 3.

4.21 From its review of the Energy Priority Areas, and the background study that informed them, it is apparent that once industry-standard site criteria are applied, less than 5% of the identified areas are suitable for the deployment of renewable energy at the scale required to meet Welsh Government targets for decarbonisation. The priority areas also fail to account for the locations of operational wind farms which may need to be repowered during the NDF's lifetime. This raises serious concerns over the robustness of the studies that informed the Energy Priority Areas. This concern is founded on our analysis of the background studies which have highlighted a number of inconsistencies (as detailed in **Appendix 1** of this document).

4.22 RUKC contends that it would be far more effective to provide a criteria-based approach for large scale energy development which allows developers to assess site constraints, characteristics and impacts and provide a robust and justifiable case for development.

4.23 This is an approach that has been taken for energy NSIPs in England utilising the National Policy Statements (NPS) which, aside from the NPS for nuclear, do not include any spatial allocations. The NSIP regime has been running for over 10 years and both the regime and the NPSs have been praised for the clarity and certainty they provide.

4.24 RUKC believes the NDF should adopt a more positive position with respect to renewable energy development. It is our view that the priority areas should be removed from the NDF entirely. Proposals across Wales should be given the same level of 'in principle' support as is provided under Policy 10 (as currently drafted) with the exception of the areas identified under Policy 12.

4.25 The supporting text to Policy 10 (as drafted) places an importance on the ability of the Energy Priority Areas to deliver in order to meet the Welsh Government's renewable energy targets and that "the implementation of developments *within the Priority Areas* will be monitored". The removal of the Priority Areas will allow development to come forward across Wales and this will need to be monitored.

4.26 RUKC strongly believes that the traffic light approach should be deleted as the terminology used is unhelpful and doesn't reflect the WG's intent. The NDF presents a 'green light' for the priority areas but the current drafting suggests that areas with 'amber lights' are more closely aligned with 'red' than 'green'. RUKC is confident that this was not the intention of the NDF and believes it can be rectified by amending Policies 10 and 11 for the following reasons:

- Policy 10 refers to a presumption in favour of development of large-scale onshore wind and solar development, however, to meet the Welsh Government's targets, this presumption should apply to all renewable and low carbon energy development proposals;
- Policy 10 needs to include a specific statement that the need for large scale renewable and low carbon energy development, together with grid connections and other technologies that will facilitate its deployment, is established and accepted and does not need to be demonstrated at application stage;
- the significant weight that is given to a proposal's contribution to reducing Wales greenhouse gas emissions and meeting their decarbonisation and renewable energy targets should be applied to all renewable energy policies, and any other technologies which facilitate their deployment;

- Policy 10 also sets out that planning applications must demonstrate how local social, economic and environmental benefits have been ‘maximised’ that adverse impacts must be ‘minimised’. This wording creates uncertainty for developers and decision-makers as no definition is provided as to how these thresholds can be achieved. The test is not standard in planning and will simply create confusion and disagreement. This is a policy flaw that needs to be addressed.

4.27 The supporting text to Policy 10 should also include reference to the potential environmental benefits that large scale renewable energy projects can deliver, such as contributing to resilient ecological habitats, restoring degraded peatlands and restoring semi-natural grasslands.

4.28 The points raised above clearly demonstrate that clarification is required. RUKC recommends that careful consideration is given to the rewording of Policy 10 and the deletion of Policies 11 and 13. RUKC welcomes the commitment to issue “*further guidance on the development of on-shore wind and solar energy schemes...*” and would welcome the opportunity to assist the Welsh Government in preparing this guidance.

4.29 It is RUKC’s view that the changes suggested provide the Welsh Government with a significant opportunity to ensure the effective implementation of the NDF by providing strategic ‘in principle’ support for renewable energy generating development and clearly establish the need for such development across Wales. The detailed policy guidance could then establish the matters to be assessed in any planning application made without the need for any spatial element in a similar approach to the energy NPSs in England. RUKC would suggest that the Welsh Government considers the assessment criteria included within Annex C of TAN8 and the energy NPSs¹⁵ as a starting point for the impacts to be assessed in connection with large scale energy development.

4.30 Policy 11 refers to Onshore Wind and Solar Energy outside of the Energy Priority Areas. As discussed above, RUKC understands that the Welsh Government’s objective is for the NDF to provide policy support for all renewable and low carbon energy developments outside of the Priority Areas, but neither Policy 11 nor Policy 13 state this explicitly. RUKC therefore suggests the following policy amendments:

- Delete policy 11 and 13 entirely and apply Policy 10 (subject to amendment to a criteria based approach) to renewable and low carbon energy development across the whole of Wales (except the areas covered by Policy 12)

5. Suggested policy amendments

5.1 RUK Cymru Suggested new Policy 10

¹⁵ National Policy Statement for Overarching Energy (EN-1) / NPS for Renewable Energy (EN-3) / NPS for Electricity Networks (EN-5)

The Welsh Government supports large scale onshore renewable and low carbon energy development. There is a presumption in favour of development for these schemes across Wales outside of the areas identified by Policy 12. With respect to the development of large scale wind and solar, there is also an associated acceptance of landscape change for schemes outside the areas identified by Policy 12.

When determining planning applications for large scale low carbon and renewable energy development, significant weight will be given to the proposal's contribution to:

- *reducing Wales' greenhouse gas emissions and meeting decarbonisation and renewable energy targets*
- *delivering wider environmental, social and economic benefit*
- *satisfying an identified need for renewable and low carbon energy infrastructure*
- *facilitating the deployment of large scale renewable energy development*

Planning applications must demonstrate the proposal is acceptable in social, economic and environmental terms and that there are no unacceptable adverse effects on, or due to, the following (where relevant to the technology proposed):

- *landscape and visual;*
- *biodiversity, ecology and nature conservation*
- *geo-environmental;*
- *historic environment;*
- *traffic and transport;*
- *noise and vibration*
- *residential amenity;*
- *Socio-economic*
- *Air quality and emissions*
- *telecommunications, aviation and defence;*
- *hydrology, hydrogeology, the water environment and flood risk;*
- *waste; and*
- *cumulative impact.*

Suitable access to the site for construction and maintenance purposes must be provided. Plans must also be in place for the end of the development's lifetime, including the decommissioning of the site at the end of its operational life.

It is also suggested that the following text is added to the supporting text to Policy 10 to provide clarity to the issues to be considered in the planning balance:

In considering any proposed development, and in particular when weighing its adverse impacts against its benefits, the Welsh Ministers should take into account:

- *its potential benefits including its contribution to meeting the need for energy infrastructure, job creation and any long-term or wider benefits; and*
- *its potential adverse impacts, including any long-term and cumulative adverse impacts, as well as any measures to avoid, reduce or compensate for any adverse impacts.*

In this context, the decision-maker should take into account environmental, social and economic benefits and adverse impacts, at national, regional and local levels.

5.2 In summary, RUKC agrees with the objectives of NDF Policies 10 – 14 but considers that the support provided to energy generating development needs to be strengthened and a recognition of the mix of technologies required to deliver a flexible, resilient, low carbon energy system needs to be added. The NDF must also include a policy against which devolved grid projects (up to 132kV) can be determined. If the NDF is to facilitate the delivery of energy generation at the scale required to meet the Welsh Government targets for decarbonisation, it is critical that policies relating to grid connection are included in the NDF.

5.3 The NDF must include a presumption in favour of renewable energy development in all areas except those identified under Policy 12.

5.4 RUKC supports the regional policies included within the draft NDF but considers that all regions have the potential to deliver large scale energy generation and that this should be reflected in the policies and the supporting text.

5.5 RUKC supports Policy 22 (North West Wales and Energy), however it is noted that the supporting text refers to determining nuclear energy generating stations in this region. Applications for nuclear energy generating stations (which are likely to exceed 350MW) are not devolved and therefore this wording needs to be carefully reviewed. Furthermore, RUKC proposes that the policy must include support for all types of energy generation and needs to be linked with Policy 11 (if it is retained).

5.6 The supporting text also states that *“the planning system has a key role in supporting renewable energy and ensuring the North plays its part in decarbonising society, and that the region has a strong potential for generating wind, solar and tidal energy”*. It also refers to the positive impacts the nuclear sector can present in terms of investment, skills and training. Immediately following this statement, the text highlights that the ‘Anglesey Energy Island Programme’ seeks to co-ordinate action around new energy developments. RUKC is of the view that the policy appears to be overly focussed on nuclear, without making reference to other energy developments and the benefits they can deliver. This policy needs to be reworded to emphasise the economic benefits of other energy developments including, for example, pumped hydro and offshore wind.

5.7 The NDF should also clarify that local planning authorities (LPAs) cannot adopt supplementary guidance that contradicts the NDF, for example through landscape capacity/sensitivity studies that constrain development. Without this, there is a risk that the NDF could be diluted sequentially through the hierarchy of plans and restrict large scale renewable energy development.

Appendix 1 - RenewableUK Cymru analysis of Arup Stage 1 Development of Priority Areas for Wind and Solar Energy (7 March 2019) and Arup Stage 2 Refinement of Priority Areas for Wind and Solar Energy (20 June 2019)

Welsh Government commissioned Arup to undertake a detailed analysis of the developable opportunity for onshore wind and solar renewable energy projects. RUKC is extremely concerned regarding elements of Arup’s methodology and results, for the reasons set out in the tables below.

Arup Stage 1 - Development of Priority Areas for Wind and Solar Energy (7 March 2019)	
Section	RUKC response
<p>4.2 Analysis: Table 2: Scenario specific benefits and challenges Scenario 1: Presented the list of fixed constraints for critique Scenarios 2 and 3: Presented varying levels of variable constraints for critique Scenario 4: Presented all of the fixed and the maximum number and level of variable constraints for critique</p>	<p>Scenario 1: RUKC is supportive of a criteria-based approach based on an avoidance of fixed constraints identified in Scenario 1. It is not appropriate to use variable constraints and high-level assessments at the plan making stage – the impacts of individual projects should be assessed on a case by case basis through environmental impact assessment (EIA) to determine acceptability. Scenarios 2 and 3: As recognised in the Arup report, the challenges for Scenarios 2 and 3 are particularly relevant to industry. The Arup report does not explicitly state which variable constraints have been used and the rationale for inclusion of some (i.e. woodland, ALC 1&2, historic landscape, open access, peat deeper the 45cm, UNESCO biosphere and LANDMAP) and exclusion of others (operational projects, and a separation distance from residential properties for onshore wind). Scenario 4: RUKC agree with Arup’s conclusion in that Scenario 4 would be least likely to meet Welsh Government renewable energy targets.</p>
Table 3 Fixed Constraints	RUKC has no objection to the list of fixed constraints.
Table 4 Variable Constraints	RUKC objects to the application of variable constraints at the plan making stage and is particularly concerned with the use of the woodland, ALC 1&2, historic landscape, open access, peat deeper the 45cm, UNESCO biosphere and LANDMAP at this stage (<i>concerns raised by RUKC members to the Welsh Government and Arup in October 2018</i>). These constraints apply a more detailed spatial granularity to the mapping that is excessive for this high-level exercise. Such constraints are a matter for detailed site by site assessment. The purpose of the spatial mapping exercise should be, at a very high level, to clearly

	<p>preclude absolute areas that should not be developed but seek to retain as many remaining areas as possible in the understanding that the challenges of developing sites results in many not getting to the application and/or consent stages.</p> <p>For detailed commentary on woodland, ALC 1&2, historic landscape, open access, peat deeper the 45cm, UNESCO biosphere and LANDMAP, see comments against Appendix A Table 2 below.</p>
<p>5.5.1 Areas of most opportunity: These areas were developed taking into consideration the following:</p> <ul style="list-style-type: none"> • Maximising the areas of greatest opportunity where possible, focusing on the areas which could accommodate development at a scale of over 10MW; • Each area has at least some grid infrastructure and road infrastructure within it; • Wind speed, this was to used highlight areas where energy generation potential could be maximised; and • A final cross check and review against the TAN 8 SSAs. 	<ul style="list-style-type: none"> • Maximising the areas of greatest opportunity: the RUKC evidence base clearly demonstrates that the Arup assessments result in limited developable areas within the Priority Areas (see maps). • Grid and road infrastructure: The report has simply overlaid the grid network onto the constraint maps. It is counterproductive for priority areas being close to a network that projects can't connect into. Conversely, it may be worth bringing the network out to an area with an unconstrained high wind resource. The Arup methodology highlights areas as being 'poor' if there is not good access to grid but does not explain how this is determined. Viability will depend on capacity, e.g. a 10MW project will need to be relatively close to a connection point, whereas a >100MW project may be viable with a connection much further away. There should be a more ambitious outlook, focusing on potential locations for new connection hubs which could be built to release the wind resource and strengthen the network for consumers, i.e. in rural areas to accommodate the uptake of electric vehicles. • Wind speed: RUKC's evidence base suggested that terrain and wind speed have not been applied by Arup and this constrains the developable opportunity within Priority Areas. • Cross-check against TAN8 SSAs: RUKC is concerned by the exclusion of undeveloped SSAs (whole or part) which were identified in 2005, including sites on the Welsh Ministers Woodland Estate. This inconsistency harms the significant

	investments made to date and ultimately the deliverability of renewable energy targets.
<p>6.2 Next steps for NDF policy: Under next steps, Arup assessment suggests more detailed analysis of the areas in terms of:</p> <ol style="list-style-type: none"> 1. Grid availability: Engage with National Grid and distribution network operators (DNOs) in order to assess the available capacity of National Grid OHLs and distribution level infrastructure in the priority areas for refinement. Assessment should include review of available capacity on existing lines and also scope for new infrastructure where limited OHLs exist. 2. Landscape and visual impacts: Undertake a landscape sensitivity assessment, for areas recommended by NRW to identify areas to analyse further. 3. Access: Assess current access and proposed road infrastructure upgrades. 4. Landownership: Assess the priority areas for refinement in terms of public or privately-owned land. This will help to identify how publicly owned land can be used to encourage local ownership. 	<ol style="list-style-type: none"> 1. Grid availability: RUKC is of the view that neither the Stage 1 or Stage 2 assessments have adequately reviewed grid availability and/or scope for new infrastructure (see comments against 5.5.1 above). 2. Landscape and visual impacts: RUKC is of the view that targeted landscape sensitivity assessments risks creating an unfavourable policy context and unduly limiting onshore wind. Detailed landscape and visual impact assessment (LVIA) within the design processes should be the driving factor in determining acceptability. 3. Access: RUKC views this as beyond the remit of a high-level assessment and should be left to site-specific project planning. 4. Landownership: There are numerous operational and development sites within TAN8 SSAs and on the Welsh Ministers’ estate which make a significant contribution to renewable energy targets and provide local benefits. The exclusion of some areas previously within TAN8 SSAs as well as other potentially suitable areas on the Welsh Ministers’ estate undermines future deliverability.
<p>Appendix A: Table 2: Variable risk which if applied goes to high risk including (amongst others):</p> <ul style="list-style-type: none"> • Woodland inc. commercial plantation (Workshop input) • Peat greater than 45cm (Developer input on variability. Depth defined by dataset) – • Predictive Agricultural Land Classification (Arup experience) • Open Access (Arup experience) • LANDMAP High and Outstanding (Workshop input) • Historic landscape (Arup input) • UNESCO biosphere (Client input) 	<p>RUKC are concerned about the inclusion of the following as ‘variable constraints’:</p> <ol style="list-style-type: none"> 1. Woodland inc. commercial plantation: The definition of ‘Woodland’ is very broad and covers all forms of forestry, including coniferous forestry – this is concerning. Woodlands and wind farms can and do sit comfortably alongside each other – in fact, offering benefits to the other, such as landscape mitigation, infrastructure improvements and habitat enhancements. Three large scale onshore wind farms emerged from the TAN8 process, namely Pen y Cymoedd (228MW), Brechfa Forest West (57.4MW) and Clocaenog Forest (96MW) -

all on the Welsh Minister's estate. These have all been successful in providing renewable energy and wider benefits to the local area through employment and community benefit funds, and to the people of Wales through the income they generate for the Welsh Ministers. All three are also on Open Access land which has been used as a constraint in the refinement of a number of the Priority Areas (see Section 9.3 of the Arup Stage 2 Assessment where Priority Areas have been cross checked against SSAs).

- 2. Peat greater than 45cm:** Constraint should not be applied as there is no confidence in the accuracy of the datasets applied – there is no substitute for site-specific peat probing carried out as part of the EIA process. The NDF (page 41) states that *“renewable energy projects can also provide environmental benefits, such as contributing to resilient ecological networks, restoring degraded peatlands and restoring semi-natural grasslands on post-agricultural land”*. However, areas of peat >45cm (including degraded peat) are largely excluded from the refined Priority Areas in the Stage 2 report, limiting the likelihood that this ‘opportunity’ and tangible co-benefit of wind farm development can be realised.
- 3. Agricultural Land Classification 1 and 2:** The avoidance of Agricultural Land Classification (ALC) Grade 1 and 2 land appears to have flowed directly from existing planning policy which applies to solar energy, not wind and demonstrates poor judgement by Arup. ALC Grade 1 & 2 land in Wales is highly unlikely to coincide with high wind zones on higher ground in Wales.
- 4. Open Access:** For the same reasons as Woodland, Open Access should not be a constraint for onshore wind. It is acknowledged that there are areas of Open Access land that may be unsuitable for development however impacts would be assessed as part of the EIA and decision-making processes. As with ALC Grade 1 and

2 land and Woodland, onshore wind farms can and do sit comfortably within Open Access land (for example, Mynydd y Gwair, Mynydd y Betws and Awel Aman Tawe).

- 5. LANDMAP Outstanding and High:** The evaluations presented in LANDMAP are potentially subjective and are likely to vary considerably across any given area. Any overall 'evaluation' in LANDMAP is subjective and out of date in areas, particularly the degree to which LANDMAP captures and recognises the effects of existing wind farm development. A better approach would have been to consider Landscape Character Type (LCT) which is more relevant to the selection of wind farm sites e.g. 'forested upland plateau' or 'plains' – these also have the advantage of being more objective.
- 6. Historic Landscapes:** Historic landscapes are a non-statutory designation and should not be considered as a hard constraint. These were not a constraint in developing SSAs (which allowed for assessment on a site by site basis) but has been used as a constraint in the refinement of a number of the Priority Areas (see Section 9.3 of the Arup Stage 2 Assessment where Priority Areas have been cross checked against SSAs). Development proposals within a Historic Landscape could still, in principle, be acceptable if the policy criteria are met.
- 7. UNESCO Biosphere:** UNESCO's Biospheres have three aims: *"Conservation protecting, wildlife, habitats and the environment; Development – encouraging a sustainable economy and community; and Education – supporting research, monitoring, and building global networks to share and learn.to inspire communities to work together"*. Large scale onshore wind is not incompatible with a UNESCO Biosphere and several existing projects operate within other Biospheres, e.g. the Galloway and Southern Ayrshire Biosphere Reserve. The

	exclusion of an area, in part due to the presence of a UNESCO Biosphere, is therefore questionable.
<p>Appendix A Table 3 Overlay layers: doesn't impact on identified areas, user can apply which is added to high risk base layer, including (amongst others):</p> <ul style="list-style-type: none"> • Existing wind and solar farms • Existing buildings OS Vector map local All buildings 	A fundamental flaw in the Arup assessment is the use of 'Existing wind and solar farms' and 'Existing buildings OS Vector map local All buildings' as overlay layers which do not impact on the map, as demonstrated in RUKC mapping of each Priority Area. These two factors are key drivers for wind farm identification and have a significant impact on deliverability within Priority Areas.
2.5.1: It is assumed that a spacing of five diameters by seven diameters is required per turbine	RUKC recommend 5x3 spacing (<i>raised by RUKC members to the Welsh Government and Arup in October 2018</i>).
4 Summary: Table 10 (point 6): A decision was required to determine the degree that a user can vary the buffer zones for each constraint - AONB, National Park and existing building constraints will have buffer zones applied.	A buffer of any fixed distance is somewhat arbitrary and should be treated with caution. The need for buffers should be considered at the detailed design stage and based on a detailed and site-specific EIA process.
Appendix B: Table 10: Fixed constraints applied to all scenarios, including (amongst others): NATS, CAA and MoD exclusion zones MoD to send data on the MoD estate.	Arup have either not received MoD data or have disregarded it as MoD's Sennybridge Tactical Training Area takes up most of Energy Priority Area 8 (see RUKC map: Priority Area 8 – Constraints).
Appendix D: Further maps: Map D1: Technical Advice Note 8 (Wind Preferred Scenario)	Map D1 clearly illustrates RUKC concerns, where (based on the Arup assessment approach) the vast majority of TAN8 SSAs are in 'Areas of Varying Opportunity', including the operational sites at Pen-y-Cymoedd, Brechfa Forest West, Clocaenog, Mynydd y Gwair, Carno 1 and 2, Mynydd Clogau, Cem maes. The perception this creates is one of a retrograde, rather than permissive attitude to future development.

Arup Stage 2 - Refinement of Priority Areas for Wind and Solar Energy (20 June 2019)	
Section	RUKC response
1.1 The analysis and assessment presented in this report has been carried out at a high-level, appropriate to national decision-making	RUKC disagrees that this approach is “ <i>appropriate to national decision-making</i> ” as these ‘high-level’ assessments are excluding suitable sites. There is also a question around whether the analysis and assessments are ‘high-level’ or actually erring into more site specific and granular detail that suggests a level of accuracy beyond what is achievable at this scale. RUKC is supportive of a criteria-based approach based on an avoidance of fixed constraints identified in Scenario 1. It is not appropriate to use variable constraints and high-level assessments at the plan making stage – the impacts of individual projects should be assessed on a case by case basis through environmental impact assessment (EIA) to determine acceptability.
2.3 Table 2 Final Fixed Constraints	RUKC has no objection to the list of fixed constraints.
2.3 Table 3 Variable Constraints	RUKC objects to the application of variable constraints at the plan making stage and is particularly concerned with the use of the woodland, ALC 1&2, historic landscape, open access, peat deeper the 45cm, UNESCO biosphere and LANDMAP at this stage (<i>concerns raised by RUKC members to the Welsh Government and Arup in October 2018</i>). See specific comments relating to these variable constraints above.
3. Landscape and Visual Assessment	As the NDF is a policy document, its application in practice by the Welsh Ministers in determining DNS applications will be subject to legal duties relating to National Parks, Areas of Outstanding Natural Beauty and other designated landscapes. A buffer on designations is not appropriate – the EIA will consider the effects on a detailed site-specific basis and the decision-maker will determine acceptability on that basis. A subjective high-level strategic landscape study together with inappropriate and onerous buffers risks ruling out suitable areas.
3.2.1.2 Intervisibility Modelling – Summary implications for refinement: Priority Areas for Refinement should be refined to avoid parts of the visual study areas within the priority areas which would	The application of ‘26-50% visibility band and above’ is too simplistic and the use of ‘line of sight’ modelling is also criticised. It is too detailed an approach for a high-level strategic assessment and the way it is

<p>result in the greatest levels of visibility i.e. locations which generate visibility in the 26-50% visibility band and above. In addition, it is recommended that design guidance is developed to minimise visual effects on the most sensitive parts of the nationally designated landscapes wherever possible. It is noted that this will be used primarily for refinement of areas for wind. Solar may be suitable in these areas.</p>	<p>presented within the Arup reports suggests a level of accuracy beyond what is achievable at this scale. Additionally, it is not consistent with NRW's Draft guidance for Landscape Sensitivity and Capacity: An Assessment approach for Wales (August 2018). The significance of visual effects and effects on setting are influenced by much more than the potential for intervisibility. Arup have done extensive and detailed work, but this is a very crude tool which, unfortunately, seems to have had a significant influence on the extent of Priority Areas.</p>
<p>3.2.2 LANDMAP – Summary implications for refinement: Given the extent of LANDMAP coverage, LANDMAP layers should be used as a secondary reference in refinement; not driving initial changes but used as an additional evidence layer where there are difficult decisions to be made.</p>	<p>LANDMAP should not be a consideration at the high-level plan making stage. LANDMAP-based assessments have been used to effectively exclude large areas which could otherwise be suitable, including in Monmouthshire, the Cambrian Mountains, areas around Mynydd y Gwynt, and TAN8 SSA D (Nant y Moch) (see Arup Stage 2: 9.2 excluded areas).</p> <p>There are significant LANDMAP High & Outstanding areas within the Priority Areas, and Arup's approach is therefore inconsistent. These arbitrary exclusions must not dictate Welsh Government policy. The impacts of individual projects should be assessed on a case by case basis through environmental impact assessment (EIA) to determine acceptability.</p>
<p>4.2.1 Appendix D also shows the location of Priority Areas for Refinement in relation to publicly owned land as increased proportions of publicly owned land will increase opportunities for locally owned renewable generations and therefore contribute to meeting Welsh targets.</p>	<p>Despite the commentary at paragraph 4.2.1, the Arup study excludes suitable publicly owned land on the Welsh Minister's estate, including Nant-y-Moch (SSA D), Dyfnant Forest (SSA C), Y Bryn, Southern block (SSA F – tender recently awarded). The Priority Areas are therefore reducing opportunities for locally owned renewables and conflicts with comments on 'deliverability' in the NDF.</p> <p>Furthermore, Appendix D is misleading in terms of future opportunities as it includes Pen-y-Cymoedd, Brechfa West and Clocaenog which are already operational, and likely to be in operation until beyond the end of the NDF plan period (2040). There are significant areas of publicly owned land, without fixed constraints, outside of the Priority Areas, including parts of the Welsh Ministers' estate previously included in TAN8 SSAs.</p>

<p>4.2.3 Furthermore, siting of wind turbines close to dwellings could result in noise disturbances and shadow flicker. Whilst these are potential disadvantages to proximity, significant impacts can usually be avoided through sensitive design.</p>	<p>Despite a recognition of the potential impacts on dwellings, no separation distance from residential properties has been used in the formation of the Priority Areas. As a starting point, a residential housing buffer would be set at 750m for these purposes and (as demonstrated in the RUKC mapping) this presents a significant constraint to the developable area.</p>
<p>4.2.3 A high density of publicly owned land within a Priority Area for Wind and Solar Energy is another factor that could support the achievement of the local ownership target. Table 4 therefore shows the percentage of each Priority Area for Refinement made up of publicly owned land.</p>	<p>This is misleading for new opportunities as it includes Pen-y-Cymoedd, Brechfa West and Clocaenog – all operational so will not contribute to increased local ownership targets. There are significant areas, without fixed constraints, that are publicly owned but outside EPAs, including parts of the Welsh Ministers’ estate previously included in TAN8 SSAs.</p>
<p>4.2.4 Buried cables cost between £1,000 and £1,200 per metre, with overhead lines costing only slightly less and therefore, it is in the generator’s interest that generation sites are as close as possible to the existing grid to minimise the costs associated with new cabling.</p>	<p>The claim that overhead is only “slightly less” costly than underground cabling is contrary to evidence.</p> <p>The Western Power Distribution (WPD) Lifetime Costs Report – Brechfa Forest Connection Project (February 2014) indicate that overhead line (OHL) costs were almost $\frac{1}{7}$th of the cost of underground cabling (UNG). Capital Costs: OHL = £133/m; UNG = £876/m. Factoring in lifetime costs, OHL was less than a $\frac{1}{4}$ the cost of UNG.</p> <p>The WPD Statement of Methodology and Charges for Connection to WPD (South Wales) plc’s Electricity Distribution System (April 2019) states:</p> <ul style="list-style-type: none"> • 33kV mains cable: lay 30m cable or less in unmade ground, including excavation and reinstate to match the existing surface, £4,553- £9,249 (i.e. 33kV UNG = ~£150 - £300/m). • Extension of 132kV mains cable: lay 40m cable or less in unmade ground, including excavation and reinstate to match the existing surface, £85,000-£90,000. (i.e. 132kV UNG = £2,125 - £2,250/m)
<p>5.1.2 Grid capacity calculations: For each substation, the distance to the nearest Priority Area for Refinement was calculated. Substations over 20km from a Priority Area for Refinement were eliminated from analysis under the assumption that it would always be preferable to connect to a closer substation, and Appendix A A1 Summary of underpinning assumptions: It was assumed that, where substations were greater than</p>	<p>RUKC believes it should be for industry to determine whether projects are economically viable. Connections to recently constructed projects at Brechfa Forest West and Clocaenog Forest are >20km from substations (Swansea North and St Asaph respectively).</p>

<p>20km from a generation site, it would not be possible to connect due to the costs of new cabling and that it would be preferable to connect to a substation closer to the priority area.</p>	
<p>5.2 Grid connection results: The results from the grid capacity analysis show that, for the 2030 renewable energy targets to be met, Priority Areas for Refinement 4, 5 and 14 have significant generation headroom to meet its contribution to the target if only DNO headroom is assumed. If DNO and National Grid headroom were shown to be available through active network modelling, then Priority Areas for Refinement 2, 3, 4, 5, 12 and 14 would not need grid infrastructure improvements to meet their proportion of the renewable energy target.</p>	<p>Arup's own assessment only considers 6 of the 15 Priority Areas to have headroom or not need grid infrastructure improvements which infers that grid upgrades will be required for 9 of the 15 Priority Areas. RUKC members can also confirm there is no available grid capacity in Priority Area 5. All new developments require new grid infrastructure and future projects are currently contracted to connect into the SPEN/National Grid Mid Wales hub. The RUKC mapping also demonstrates the limited developable area within Priority Areas and the Arup assessment therefore misleads where grid upgrades will be required.</p>
<p>9.3 Cross Check with TAN8 SSAs</p>	<p>The rationale for excluding TAN8 SSAs (historic landscape, LANDMAP, open access, buffers on designations) have been inconsistently applied by Arup and should, in any case, be assessed on a case by case basis through environmental impact assessment (EIA) to determine acceptability.</p>

APPENDIX 2 – Criteria which were applied for the RUKC mapping exercise to assess the priority areas’ potential for Onshore wind development

Item / Feature	Specification / Buffer Separation
All national designations for landscape, ecology and geology: NPs, AONBs, SPAs, SACs, SSSIs and NNRs etc NB: no buffer to such features to be applied to constraints mapping exercise	Avoidance
World Heritage Sites, Conservation Areas, Schedule Ancient Monuments	Avoidance
Ancient Woodland	Avoidance
Airport and runways	Avoidance
MoD assets e.g. training and danger areas	Avoidance
Turbine tip height (Includes for a range of turbines sizes 3.6 – 5 MW)	175m (150m rotor)
Landtake areas per wind turbine	265,000m ²
Turbine separation	3 rotors x 5 rotors
Residential Dwellings (Realistically the buffer for noise and visual blight purposes may be higher at 1000m, but we have been conservative at this stage so as not to overly penalise the priority area potential)	750m
Main rivers	Avoidance and 75m buffer

Roads	Tip height plus 10%
Railway lines	Tip height plus 10%
National grid gas pipelines and overhead distribution electricity lines	Tip height plus 10%
National transmission pylons and lines	X 3 rotor diameters
Terrain (subject to availability of Wales' wide DTM)	15% slope or greater to be avoided

